

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
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Tritium Laboratory

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SWAB REPORT # 853

SWAB DATE: 24 February 2017

R/V Hugh Sharp

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Tim Deering

COMMENTS TO SWAB REPORTS

12 May 2014

Typical LSC instrument background values for ^3H and ^{14}C are 2 and 5 cpm, respectively. The LSC is a Tricarb 2910 TR with the low level counting option.

All samples are counted for 60 minutes, the instrument background is subtracted, and activities are reported in dpm/m^2 . Bucket blank activities are not subtracted. Counting errors (2 standard deviations) are also reported in dpm/m^2 . An error larger than the activity indicates that the activity is not significantly different from zero.

Criteria for SWAB Results

Category	^3H (dpm/m^2)	^{14}C (dpm m^2)	Recommendations
A	<500	<50	No action
B*	500-10,000	50-10,000	Needs cleaning before any natural tracer work. Decks in radiation vans with activities above $1000 \text{ dpm}/\text{m}^2$ should be cleaned.
C**	10,000-100,000	10,000-50,000	Must be cleaned before any use.
D***	>100,000	>50,000	May be a health hazard. Notify local radiation safety official.

Note: ^{14}C and ^{35}S have peak energies of 156 and 167 KeV, respectively; thus ^{35}S will be registered as ^{14}C by our counting techniques. Categories A, B and C are not a health hazard.

Recommended Cleaning Procedure

Wearing ordinary household rubber gloves:

^3H : Wash and scrub with radioactive cleanup detergent such as COUNT-OFF (50 ml COUNT-OFF to 4 liters of water), using sponges to distribute solution and reabsorb it.

^{14}C : Wash with 1% sulfuric or 2% hydrochloric (muriatic) acid with good ventilation (will dissolve carbonates, releasing $^{14}\text{CO}_2$). Follow up with wash as if for ^3H .

Disposal of Cleaning Materials (gloves, sponges, etc)

Categories A & B dispose as ordinary garbage, C & D contact your institution's radiation safety office.

Note: If category C or D is encountered, we try to notify the insitution promptly by phone or email.

REPORT FOR SWAB # 853

LOCATION: Lewes, DE

VESSEL: *Hugh Sharp*

DATE: 24 February 2017

TECHNICIAN: Yudy Mendoza

Sample # Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
	activity	error	activity	error
1 1st Vial Bkgnd	0	± 3	0	± 4
2 Initial bucket blank	24	± 45	0	± 7
<u>Main Lab (Figure 1)</u>				
3 Forward port benchtop	14	± 59	-9	± 32
4 Deck at entrance to Data Acquisition Room	19	± 66	-15	± 23
5 Deck in center of Utility Electric Room	30	± 42	6	± 30
6 Benchtop next to sink	14	± 155	-19	± 28
7 Forward port benchtop	-8	± 44	-25	± 37
8 Port benchtop across from science computer	-3	± 38	-26	± 41
9 Forward starboard benchtop	18	± 84	-16	± 38
10 Center starboard benchtop	10	± 55	-36	± 46
11 Aft starboard benchtop	-36	± 42	-20	± 32
12 Aft benchtop across from spill control	-8	± 36	-30	± 45
13 Aft port benchtop	-6	± 29	-33	± 52
14 Sink area	11	± 41	-42	± 64
15 Deck below sink	24	± 181	-38	± 53
16 Deck at entrance to Wet Lab	47	± 61	-17	± 26
17 Deck in front of port porthole	18	± 91	-17	± 38
18 Deck between forward and aft port bench	-4	± 31	-3	± 15
19 Deck between starboard and port bench	41	± 61	-7	± 19
<u>Wet Lab (Figure 1)</u>				
20 Forward port benchtop	-35	± 43	-3	± 17
21 Aft sink area	-21	± 32	-39	± 51
22 Deck at aft entrance	30	± 94	-25	± 42
23 Deck in front of aft sink	-8	± 37	-22	± 36
24 Forward starboard benchtop next to CTD	1	± 9	-22	± 28
25 Inside small freezer	4	± 28	-23	± 47
26 Inside Frigidaire freezer	19	± 202	-32	± 54
27 Inside Frigidaire refrigerator	-32	± 46	-14	± 27
28 Deck at entrance to Workshop Storage	1	± 13	-13	± 35
29 Deck in front of freezer	46	± 70	-29	± 48
30 Starboard sink area	24	± 58	-8	± 29
31 Black rubber mat in companion way outside Head	33	± 102	-38	± 47
32 Final bucket blank	16	± 322	-31	± 59

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. The reports may now contain values less than zero. When decay counting background samples will be distributed about the background vial, which means that negative values are possible. In the past we rounded the negative values to zero. Values are only significantly above background when they are positive and larger than the error. All areas tested on the ship were free from any isotope contamination that requires cleaning.

RV Hugh Sharp Lab Spaces

SWAB # 853

24 February 2017

Figure 1

